

Transformational Communications Architecture (TCA)

The Transformational Communications Architecture (TCA) is an overall joint communications strategy that aims to provide data connectivity to all echelons of the force. This architecture will deliver more than an order-of-magnitude improvement in connectivity, capacity, interoperability, availability, security, and speed. The TCA provides this through the incorporation of advanced laser and radio frequency technologies, software configurable terminals, packet switching, dynamic bandwidth resource allocation, and network and interface standards. It also implements a new concept for the management and operation of large integrated and interconnected networks, which concurrently and seamlessly connects people and machines with high reliability, survivability, and responsiveness.

The programs that will form the foundation of the TCA are the Joint Tactical Radio System, Transformational Satellite Communications System, Advanced Extremely High Frequency Satellites, Mobile User Objective System, and future satellite constellations for the intelligence and NASA communities. The new capabilities they provide include ground terminals and satellite constellations that will meet future networked force requirements.

The TCA will provide dynamic, end-to-end accessibility and coverage for global requirements across the civil, federal, and intelligence communities. In addition, the TCA will benefit from an all Internet Protocol (IP) environment, while providing an integrated network



management system, end-to-end information dissemination processes, and security management.

The TCA will enable future space-to-space, space-to-ground, airborne-to-space, and selected ground and control systems to provide interoperable, wide-band-protected, broadcast, and data-relay communications. The TCA will also provide operational management systems and the associated interfaces necessary to provide the prescribed communications capability across the GIG and the intelligence community.

TCA would provide a robust, dynamic, and flexible information enterprise environment to warfighters; every asset in the battlespace addressable and capable of generating, processing, or routing information. Ground, airborne, seaborne, and space-based communication components will use well-defined, interoperable protocols and interfaces for efficient data exchanges at the tactical level, dynamic information sharing at the operational level, and responsive decision-making and dissemination at the strategic level.